Fate Report for Case # L-19-0033

Fate
Summary Statement

Fate Summary Statement: L-19-0033
FATE:

Solid with MP = 71-73 °C (M)
S < 0.001 mg/L at 25 °C (E)
VP
< 1.0E-6 torr at 25 °C (E)
BP = Dec. > 200 °C (M)
H <
1.00E-8 (E)
POTW removal (%) = 90 via sorption and biodeg; Deg Pdt [redacted] 0
Time for complete ultimate aerobic biodeg = PMN > mo; Deg Pdt [redacted] > mo
Sorption to soils/sediments = PMN strong; Deg Pdt [redacted] low
PBT Potential: PMN P1B1; Deg Pdt [redacted] P3B*(high)
FATE: Migration to ground water = PMN slow; Deg Pdt [redacted] rapid
Bioconcentration factor to be put into E-FAST: Deg Pdt [redacted] 93

PMN Material:
Overall wastewater treatment removal is
90% via sorption and biodegradation.
Sorption to sludge is strong
based on data for fluorinated chemicals.
Air Stripping
(Volatilization to air) is low based on data for fluorinated chemicals.

Removal by biodegradation in wastewater treatment is high based on data for fluorinated chemicals.
Destruction of the substance in
wastewater treatment is partial based on data for fluorinated chemicals.

The aerobic primary aquatic biodegradation half-life is less than two months based on data for fluorinated chemicals. Primary degradation of the alkyl chain and the amide is expected.
The aerobic ultimate
aquatic biodegradation half-life is greater than six months based on data

for fluorinated chemicals.
The anaerobic primary aquatic
biodegradation half-life is two to six months based on data for
fluorinated chemicals.
The anaerobic ultimate aquatic biodegradation
half-life is greater than six months based on the aerobic biodegradation
half-life. The anaerobic biodegradation half-life is projected to be
greater than or equal to the aerobic biodegradation half-life.

Sorption to soil and sediment is strong based on data for fluorinated
chemicals.
Migration to groundwater is slow based on data for
fluorinated chemicals.
PMN Material:
Not Persistent (P1) based on
the estimated aerobic primary biodegradation half-life.
Low
Bioaccumulation (B1) based on data for fluorinated chemicals.

Degradation Product [redacted]:
Overall wastewater treatment removal
is 0% based on low biodegradability, low sorption and low stripping.

Sorption to sludge is low based on data for fluorinated chemicals.

Air Stripping (Volatilization to air) is low based on data for
fluorinated chemicals.
Removal by biodegradation in wastewater
treatment is negligible based on data for fluorinated chemicals.
The
aerobic aquatic biodegradation half-life is greater than six months based
on data for fluorinated chemicals.
The anaerobic aquatic
biodegradation half-life is greater than six months based on the aerobic
biodegradation half-life. The anaerobic biodegradation half-life is
projected to be greater than or equal to the aerobic biodegradation
half-life.
Sorption to soil and sediment is low based on data for
fluorinated chemicals.
Migration to groundwater is rapid based on
data for fluorinated chemicals.
Degradation Product [redacted]
[redacted]:
Very Persistent (P3) based on the estimated aerobic and
anaerobic biodegradation half-lives.
Bioaccumulation (B*-high) based

on data for fluorinated chemicals.
Bioconcentration/Bioaccumulation
factor to be put into E-Fast: 93.

[redacted]

Fate Assessor: Lee, WenHsiung

SMILES: [redacted]

Physical Properties

Property	Measured/Calculated Value	EPI
Molecular Form:	[redacted]	
Molecular Wt.:		
% < 500:		
% < 1000:		

Property	Measured Value	Method	Estimated Value	Method	EPI
Melting Point:	71 - 73				
Boiling Point:			Dec. >200		
BP Pressure:					
Vapor Pressure:			<0.000001		
Water Solubility:			<0.000001		
Log P:			14.29		
Log Kow:					
Log Koc:					
Log BCF:					
Henry's Law:					

pH:

pH	
Comment:	

Fate Analysis

Hydrolysis (t1/2, da):	**Volatilization (t1/2) - River (hr):**	**Volatilization (t1/2) - Lake (da):**
Atm Ox Potential (t1/2)OH (hr):	**Atm Ox Potential (t1/2)O3 (hr):**	**Atm Ox Potential (t1/2) Total (hr):**
MITI Linear:	**MITI NonLinear:**	
Biodeg Linear:	**Biodeg NonLinear:**	
Biodeg Survey ult:	**Biodeg Survey Prim:**	
STP (% removal) Total:	**STP (% removal) Biodeg:**	
STP (% removal) Ads:	**STP (% removal) Air:**	

Rationales

Removal in Wastewater Treatment:	
Atmospheric Oxidation:	
Hydrolysis:	
Photolysis:	
Aerobic Biodegradation:	
Anaerobic Biodegradation:	
Sorption to Soil and Sediment:	
Migration to Groundwater:	
Persistence - Air:	
Persistence - Water:	
Volatilization from Water:	
Soil:	

Sediment:	
Other:	
Standard:	
Bioaccumulation:	

PBT Ratings

Persistence	Bioaccumulation	Toxicity	PBT Comments
1	1		PMN
3	*		Deg Pdt [redacted] B*(high)

Exposure-Based Testing

Exposure-Based Testing:	

Fate Ratings

Removal in WWT/POTW (Overall):

Removal in WWT/POTW (Overall):	90;0 PMN;Deg Pdt [redacted]

Condition	Rating Values	Rating Description				Comment
		1	2	3	4	
WWT/POTW Sorption:	3;1	Low	Moderate	Strong	V. Strong	PMN;Deg Pdt [redacted]
WWT/POTW Stripping:	3;3	Extensive	Moderate	Low	Negligible	PMN;Deg Pdt [redacted]
Biodegradation Removal:	2;4	Unknown	High	Moderate	Negligible	PMN;Deg Pdt [redacted]
Biodegradation Destruction:	3;	Unknown	Complete	Partial	—	PMN;Deg Pdt [redacted]
Aerobic Biodeg Ult:	4;4	<= Days	Weeks	Months	> Months	PMN;Deg Pdt [redacted]
			Weeks	Months		

Condition	Rating Values	Rating Description				Comment
		1	2	3	4	
Aerobic Biodeg Prim:		<= Days			> Months	
Anaerobic Biodeg Ult:	4;4	<= Days	Weeks	Months	> Months	PMN;Deg Pdt [redacted]
Anaerobic Biodeg Prim:		<= Days	Weeks	Months	> Months	
Hydrolysis (t1/2 at pH 7,25C) A:		<= Minutes	Hours	Days	>= Months	
Hydrolysis (t1/2 at pH 7,25C) B:		<= Minutes	Hours	Days	>= Months	
Sorption to Soils/Sediments:	2;4	V. Strong	Strong	Moderate	Low	PMN;Deg Pdt [redacted]
Migration to Ground Water:	2;4	Negligible	Slow	Moderate	Rapid	PMN;Deg Pdt [redacted]
Photolysis A, Direct:		Negligible	Slow	Moderate	Rapid	
Photolysis B, Indirect:		Negligible	Slow	Moderate	Rapid	
Atmospheric Ox A, OH:		Negligible	Slow	Moderate	Rapid	
Atmospheric Ox B, O3:		Negligible	Slow	Moderate	Rapid	

Bio Comments:

Bio Comments:	

Fate Comments:

Fate Comments:	

Comments/Telephone Log

Artifact	Update/Upload Time

Artifact	Update/Upload Time
[redacted]	[redacted]